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United States Patent [19][11] **Patent Number:** **5,757,974****Impagliazzo et al.**[45] **Date of Patent:** **May 26, 1998**[54] **SYSTEM AND METHOD FOR DATA
COMPRESSION**5,513,273 4/1996 Ito 382/248
5,563,960 10/1996 Shapiro 382/248[75] **Inventors:** **John M. Impagliazzo**, Wakefield, R.I.;
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Q. Huynh**, Fall River, both of Mass.**OTHER PUBLICATIONS**H. Cha, L.F. Chaparro, Systems, Man and Cybernetics, 1993
Int. Conf., IEEE pp. 501-506.[73] **Assignee:** **The United States of America as
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Navy**, Washington, D.C.*Primary Examiner*—Joseph Mancuso
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Eipert; Prithvi C. Lall[21] **Appl. No.:** **641,018**[22] **Filed:** **Apr. 15, 1996**[51] **Int. Cl.⁶** **H04N 7/30**[52] **U.S. Cl.** **382/248; 382/277**[58] **Field of Search** 382/248, 239,
382/276, 277, 280, 250, 232; 348/395,
403[56] **References Cited****U.S. PATENT DOCUMENTS**5,315,670 5/1994 Shapiro 382/240
5,321,776 6/1994 Shapiro 382/240
5,412,741 5/1995 Shapiro 382/232
5,453,945 9/1995 Tucker et al. 382/251
5,497,777 3/1996 Abdel Malek et al. 128/660[57] **ABSTRACT**

A data compression system includes an image preprocessor for generating a digitized, formatted set of pixels which is passed to an image transformer. The image transformer generates a set of wavelet coefficients from the formatted set of pixels via a series of one-dimensional wavelet transforms. A compression processor selects a subset of the wavelet coefficients for retention based on areas of interest in the original image and the position of coefficients within the set of coefficients. The compression processor then builds a compressed image file using a coefficient location identifier to reduce the size of the addresses that indicate the position of the selected coefficients within the set.

15 Claims, 4 Drawing Sheets